

NUMBER 131

**'TRADER' SERVICE SHEETS****ALBA 210****3-VALVE BATTERY SET**

A SIMPLE 3-valve battery-operated chassis is fitted in the Alba 210 receiver, the valve arrangement consisting of a pentode H.F. amplifier, a triode detector and a pentode output valve. Three alternative aerial tapplings are provided.

**CIRCUIT DESCRIPTION**

Three alternative aerial input connections to coupling coils **L1, L2, A1** is taken via series condenser **C1** to tapping on **L1, A2** goes direct to tapping, and **A3** is taken direct to top end of **L1**.

Single tuned circuit comprising **L3, L4** and **C7** precedes pentode H.F. amplifier (**V1**, Mullard metallised SP2) operating with zero grid bias.

Tuned-secondary transformer coupling by **L5, L6, L9, L10** and **C10** to triode detector (**V2**, Mullard metallised PM1HL) operating on grid leak system with **C3** and **R1**. Reaction is applied from anode by coils **L7, L8** and controlled by variable condenser **C9**. H.F. by-passing in anode circuit by condenser **C4**.

Parallel fed transformer coupling by **R2, C5** and **T1** to output pentode (**V3**, Mullard PM22A). Tone correction in anode circuit by fixed condenser **C6**.

**DISMANTLING THE SET**

**Removing Chassis.**—If it is necessary to remove the chassis from the cabinet, first remove the back and the batteries. Then remove the three control knobs (recessed grub screws) and the four bolts (with washers) holding the chassis to the bottom of the cabinet.

The chassis can now be withdrawn to the extent of the speaker leads, which is sufficient for normal purposes. The chassis should be tilted as it is taken out, so that the tuning scale clears the speaker.

*When replacing*, note that the knob with the red and white dots should be placed on the spindle of the wave-change switch.

To free the chassis entirely, unsolder the leads to the speaker transformer terminal panel.

**Removing Speaker.**—The speaker can be removed from the cabinet by removing the nuts and washers from the four screws holding it to the sub-baffle. *When replacing*, see that the transformer is pointing to the top right-hand corner of the cabinet, when looking from the back.

**COMPONENTS AND VALUES**

| Condensers |                                | Values<br>( $\mu$ F) |
|------------|--------------------------------|----------------------|
| C1         | Aerial series condenser ..     | 0.00015              |
| C2         | H.F. trans. M.W. pri. blocking | Very low             |
| C3         | V2 grid condenser ..           | 0.00015              |
| C4         | V2 anode H.F. by-pass ..       | 0.00015              |
| C5         | L.F. coupling to T1 ..         | 0.1                  |
| C6         | Tone corrector ..              | 0.005                |
| C7†        | Aerial circuit tuning ..       | 0.0005               |
| C8†        | Aerial circuit trimmer ..      | —                    |
| C9†        | Reaction control ..            | 0.0003               |
| C10†       | H.F. transformer tuning ..     | 0.0005               |
| C11†       | H.F. transformer trimmer ..    | —                    |

† Variable. ‡ Pre-set.

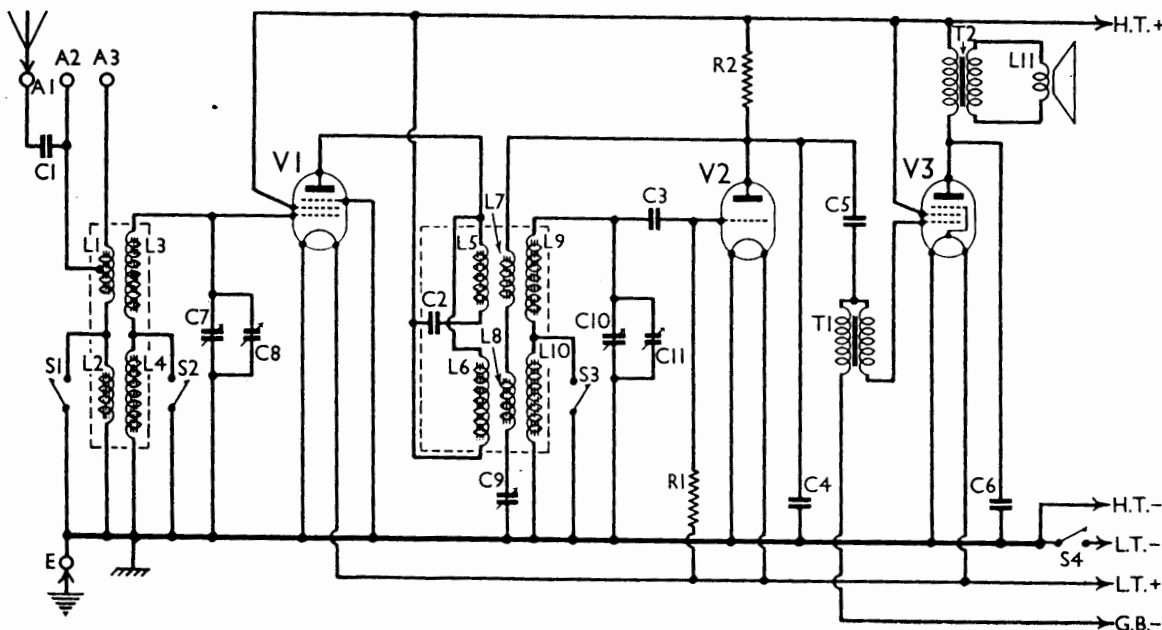
| Resistances |                     | Values<br>(ohms) |
|-------------|---------------------|------------------|
| R1          | V2 grid leak .. ..  | 2,000,000        |
| R2          | V2 anode load .. .. | 25,000           |

| Other Components |                                | Approx.<br>Values<br>(ohms) |
|------------------|--------------------------------|-----------------------------|
| L1               | Aerial coupling coils ..       | 0.8                         |
| L2               |                                | 29.0                        |
| L3               | Aerial tuning coils ..         | 0.8                         |
| L4               |                                | 8.5                         |
| L5               | H.F. transformer primary       | 0.1                         |
| L6               |                                | 38.0                        |
| L7               | Reaction coils, total ..       | 2.7                         |
| L8               |                                | —                           |
| L9               | H.F. transformer secondary     | 1.5                         |
| L10              |                                | 8.5                         |
| L11              | Speaker speech coil ..         | 2.2                         |
| T1               | Intervale trans. { Pri. ..     | 800.0                       |
|                  | Sec. ..                        | 1,400.0                     |
| T2               | Speaker input trans. { Pri. .. | 700.0                       |
|                  | Sec. ..                        | 0.25                        |
| S1-S3            | Waveband switches ..           | —                           |
| S4               | L.T. switch .. ..              | —                           |

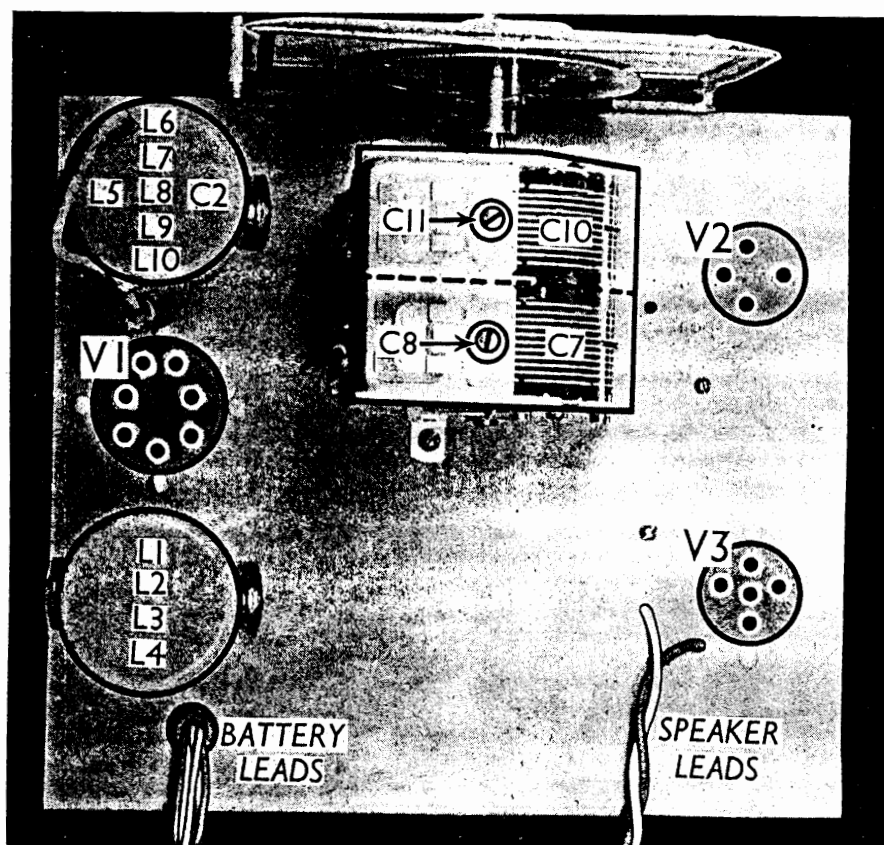
**VALVE ANALYSIS**

Valve voltages and currents given in the table (p. III) are those measured in our receiver when it was operating from a new H.T. battery reading 114 V on the H.T. section. The reaction control was at minimum and there was no signal input.

Voltages were measured on the 1,200 V scale of an Avometer, with chassis as negative.



Circuit diagram of the Alba 210 battery receiver. Note that iron-cored coils are used throughout. There are three alternative aerial sockets.



Plan view of the chassis. The L5-L10 coil unit also contains the fixed condenser C2.

primary of the internal speaker transformer, T2.

**Batteries.**—L.T., Economic 2 V 20 AH glass cased cell. H.T. and G.B., Drydex Yellow Triangle combined 108 V H.T. and 6 V G.B. battery, type S49.

**Battery Leads and Voltages.**—Black-lead, spade tag, L.T. negative; Red lead, spade tag, L.T. positive 2 V; Green lead, green plug, H.T. negative (and G.B. positive), Blue lead, blue plug, H.T. positive 108 V; White lead, white plug, G.B. negative 3 V.

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| Valve    | Anode Volts | Anode Current (mA) | Screen Volts | Screen Current (mA) |
|----------|-------------|--------------------|--------------|---------------------|
| V1 SP2   | 114         | 1.8                | 114          | 0.5                 |
| V2 PM1HL | 70          | 1.6                | —            | —                   |
| V3 PM22A | 110         | 4.6                | 114          | 1.9                 |

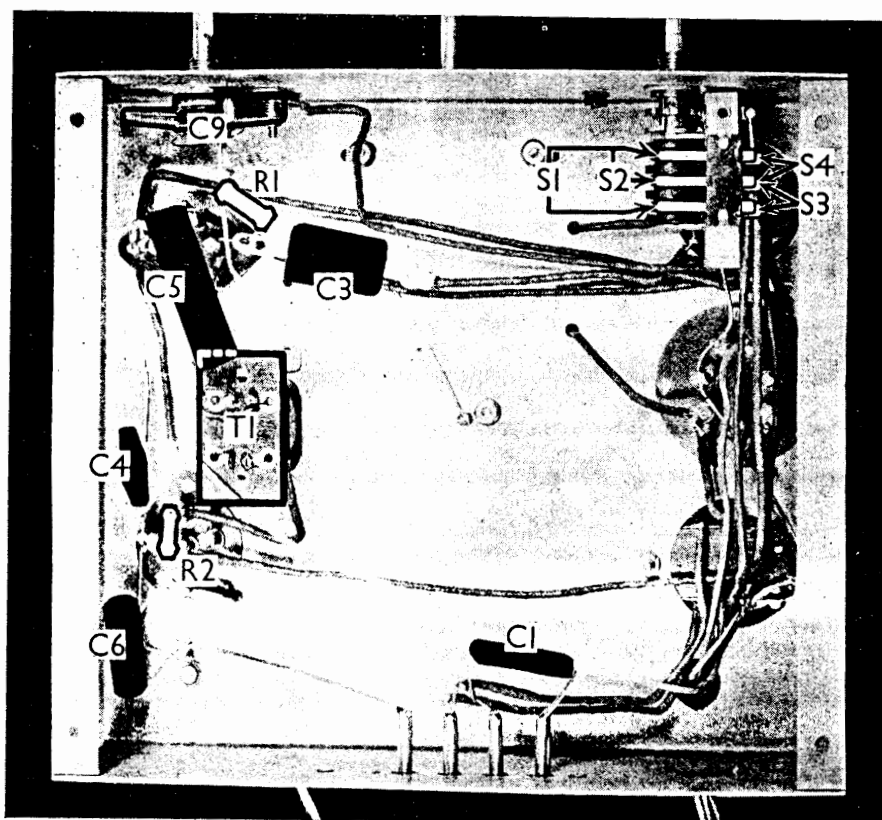
### GENERAL NOTES

**Switches.**—S1-S3 are the waveband switches and S4 the L.T. switch. They are ganged in a single unit beneath the chassis, seen in our under-chassis view. The table below gives the switch positions for the various control settings, O indicating open, and C, closed.

| Switch | Off | M.W. | L.W. |
|--------|-----|------|------|
| S1     | O   | C    | O    |
| S2     | C   | C    | O    |
| S3     | O   | C    | O    |
| S4     | O   | C    | C    |

**Coils.**—These are in two screened units on the chassis deck. All the coils are iron-cored, and it should be noted that the L5-L10 coil unit also contains the fixed condenser C2.

**External Speaker.**—There is no provision made for this, but a high resistance type could be connected across the



Under-chassis view. S1 and S2 utilise the top bank of contacts in the switch unit, while S3 and S4 use the lower bank. One contact is common in each case.